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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/516,716	12/02/2004	Johan Torsner	PI6904-US1	9911
27045 7590 01/29/2007 ERICSSON INC. 6300 LEGACY DRIVE M/S EVR 1-C-11 PLANO, TX 75024			EXAMINER MATIN, NURUL M	
			ART UNIT	PAPER NUMBER
			2611	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		01/29/2007	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/516,716	TORSNER, JOHAN	
	Examiner	Art Unit	
	Nurul M. Matin	2635	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 December 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 29-50 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 29-50 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>06/09/06 & 12/2/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The abstract of the disclosure is objected to because the abstract must be as concise as the disclosure permits (preferably 50 to 150 words if it is in English or when translated into English). Correction is required. See MPEP § 608.01(b).

Drawings

2. Figure 1, 2 and 3 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claim 29, 30, 49, 50 are rejected under 35 U.S.C. 102(b) as being anticipated by Jung, WO 01/56249 (this reference has been cited in IDS filed on 12/2/04 by applicant).

Re claim 29, Jung discloses a method of failure avoidance when synchronizing a transceiver end and a receiver end by means of transmitted sequence numbers, wherein each sequence number is not necessarily error protected, and wherein a received sequence number considered erroneous according to a predetermined criterion is disregarded (page 3, line 21-page 4, line 4, "The present invention is directed to a method and an apparatus for synchronizing the transmitting side and the receiving side in an IP network that uses a stream encryption algorithm. A sequence number is introduced into the payload of each packet at the transmitting side and transmitted with the packets. An error detection mechanism is used to detect when the synchronization is lost and a recovery procedure is initiated. The method comprises the steps of encrypting a data packet to be transmitted, generating a sequence number associated with the encrypted data packet, and transmitting the encrypted data packet together with the sequence number via an Internet Protocol based link").

Re claim 30, Jung discloses the method according to claim 29, further comprising: arranging sequence numbers according to their time of arrival; and, purging received sequence numbers not within a prediction interval as determined from one or more earlier received and non-purged sequence numbers and number of one or more transmission time intervals with no data received between consecutively received sequence numbers (page 3, line 24-26, page 4, line 20-23, page 6, line 14-19, "Upon

receipt at the receiving side, the sequence number is extracted from the payload and used to synchronize the receiving side to the transmitting side; The sequence number processor is further configured to extract a sequence number from a received encrypted data packet, and the encryption/ decryption module is further configured to decrypt the encrypted data packet based on a value of the extracted sequence number. If synchronization between the transmitting side and the receiving side should become lost (as manifested by consecutive corrupted data packets), then the receiving side may notify the transmitting side of this condition via an error message. Upon receiving such an error message, the transmitting side may initiate a data recovery procedure including informing the receiving side that the sequence number will be restarted at a certain data packet or the next burst of data packets”).

Re claim 49, Jung discloses the method according to claim 29, wherein the method avoids cipher synchronization failure (page 3, line 26-27, “An error detection mechanism is used to detect when the synchronization is lost and a recovery procedure is initiated”).

Re claim 50, Jung discloses the method according to claim 29, wherein the method allows for reduction of redundancy being added to payload (page 6, line 2-6, “The sequence number may be appended to the encrypted payload of a speech data packet and then transmitted along with the packet. In some cases, the payload is encoded or compressed prior to encryption in order to minimize the size of the data packet”).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. **Claim 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jung, WO 01/56249 and in view of Shiu et al, US 2003/0036403.**

Re claim 31, Jung fails to teach that the method according to claim 30, wherein the transmission time intervals are weighted by the maximum number of transmission blocks of the transport format. However, Shiu does (page 1, Para 0007, line 3-7, "transmission time interval (TTI) over which the transport format applies, the size of each transport block of data, the number of transport blocks within each TTI").

Therefore, taking the combine teaching of Jung and Shiu as a whole, it would have been obvious to one of ordinary skill in the art to incorporate the arrangement of the transmission time intervals are weighted by the maximum number of transmission blocks of the transport format as thought in Shiu into Magnusson for different types or rates of data to be transmitted over a single transport channel (page 1, Para 0007, line 9-10).

Re claim 32, Jung and Shiu references discloses the method according to claim 31, and Shiu reference also teaching an integer is added to the weighted number of transmission intervals (fig. 7, page 8, Para 0088, line 8-12, "The terminal receives data for K transport channels (i.e., TrCH (k) where $k=1, 2, \dots K$, and K can be any integer one or greater) during TTI (n), at step 712").

7. Claim 33 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jung, WO 01/56249 and in view of Fuehrer et al, US 2004/0156462.

Re claim 33, Jung fails to teach that the method according to claim 30, wherein a received sequence number greater than an estimated greatest sequence number allowed is disregarded. However, Fuehrer does (page 5, Para 0060, line 6-13 and Para 0061, line 1-4, "the offset are compared with a predetermined threshold value, in which case the clock adjustment may then either be omitted or limited to the threshold value if the calculated offset exceeds or falls below the threshold value").

Therefore, taking the combine teaching of Jung and Fuehrer as a whole, it would have been obvious to one of ordinary skill in the art to incorporate the arrangement of a received sequence number greater than an estimated greatest sequence number allowed is disregarded as thought in Fuehrer into Jung for on reaching and /or exceeding this maximum value, either the clock adjustment is stopped, i.e., there is no further adjustment of the adjustment value (page 5, Para 0061, line 2-4).

Re claim 34, Jung reference disclose the method according to claim 30, and Fuehrer reference also teaching a received sequence number not greater than an

estimated greatest sequence number allowed is not disregarded (page 5, Para 0060, line 6-13 and Para 0061, line 1-5).

8. Claim 35-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jung, WO 01/56249 and in view of Jiang et al, US 2002/0126629.

Re claim 35, Jung fails to teach that the purged sequence of sequence numbers is passed to updating of a hyper frame number. However, Jiang does (page 4, Para 0035, line 16- page 5, line 1, "As the sequence number value of the PDU 123f is less than the sequence number value for the PDU 123d, rollover of the sequence numbers is inferred, and the HFN 106h on the receiving side is incremented accordingly. Decryption of the PDU 123f is thus successfully performed with the new HFN 106h value").

Therefore, taking the combine teaching of Jung and Jiang as a whole, it would have been obvious to one of ordinary skill in the art to incorporate the arrangement of the purged sequence of sequence numbers is passed to updating of a hyper frame number as thought in Jiang into Jung for a subsequent PDU 123h is thus properly decrypted using a receiving side 120 HFN 106h value that is synchronized with the transmission side HFN 106h value

Re claim 36, Jung and Jiang references discloses the method according to claim 35, and Jiang reference also teaches the hyper frame number is updated according to a basic method (page 4, Para 0035, line 1-3 and page 5, line 2-3, " the sequence

numbers for the PDUs 123d and 123f implies that the PDU 113e was lost in transmission (the basic method updates HFN correctly also if one or more PDUs are lost during transmission)”).

Re claim 37, Jung and Jiang references discloses the method according to claim 29, further comprising: and Jiang reference also teaches arranging of received sequence numbers according to their time of arrival; and, for each decision interval, sequentially disregarding each one of the received sequence numbers within a decision window comprising consecutively received sequence numbers (page 9, Para 0056).

Re claim 38, Jung and Jiang reference discloses the method according to claim 37, and Jiang reference also teaches the decision window spans an integer number of consecutively received sequence numbers starting with the sequence number of the decision interval (page 6, Para 0041, line 15-19, “Assuming that no PDUs 213 have been discarded between the current TTI 212 and a previous TTI 211, a first PDU 213a in the TTI 212 is assigned an SN value of 124, which is one greater than the highest SN value in the previous TTI 211, which was 123”).

Re claim 39, Jung and Jiang reference discloses the method according to claim 37, and Jiang reference also teaches the decision window spans an integer number of consecutively received sequence numbers starting with the sequence number of the most recently received sequence number (page 6, Para 0042, line 12-20, In particular, the MAC layer 204 recalls a previous SN value 204p, which is the highest SN value received in a previous TTI 221, and recalls unaccounted lost PDUs 204L from the

previous TTI 221. Using these values, the MAC layer 204 obtains a minimum SN value 204m and a maximum SN value 204x to define a receiving window 204w. Any PDUs 223 with SN values that are not within the range specified by the minimum SN value 204m and the maximum SN value 204x").

Re claim 40, Jung and Jiang reference discloses the method according to claim 37, Jiang reference also teaches the decision window spans at least four consecutively received sequence numbers (fig.7, shows the consecutive sequence number from 123 to 127).

Re claim 41, which claim the same subject matter as recited in claim 35. Therefore, claim 41 has been analyzed and rejected with respect to claim 35.

Re claim 42, which claim the same subject matter as recited in claim 36. Therefore, claim 42 has been analyzed and rejected with respect to claim 36.

Re claim 43, Jung and Jiang references discloses the method according to claim 41, and Jiang reference also teaches if, for any one disregarded sequence number within the decision window, the candidate hyper frame number updating results in a non-increased hyper frame number, no further sequence number is disregarded and no further candidate HFN updating is undertaken for the decision interval (page 6, Para 0044, line 2-7, "If we assume that no PDUs were lost in the previous TTI 221, then "I" is zero. The MAC layer 204 thus computes the minimum SN value 204m as 124, and computes the maximum SN value 204x as 13. Any PDUs 223 with SN values that are not within the range (124 . . . 13) of the receiving window 204w are discarded as corrupt").

Re claim 44, Jung and Jiang references discloses the method according to claim 41, and Jiang reference also teaches if, for any one disregarded sequence number within the decision window, the candidate hyper frame number updating results in a non-increased hyper frame number, the hyper frame number of the decision interval is set equal to the hyper frame number of the preceding decision interval (page 6, Para 0044 & Para 0045, "In the TTI 222, a first PDU 223a has an SN value of 124, which is equal to the minimum SN value 204m, and so is accepted").

Re claim 45, Jung and Jiang references discloses the method according to claim 41, and Jiang reference also teaches if, for all of the disregarded sequence numbers within the decision window, the candidate hyper frame number updating results in the same hyper frame number, this candidate hyper frame number is decided to be the hyper frame number of the decision interval (page 7, Para 0048, line 92-99, "the RLC layer 202 assumes that any non-contiguous SN values (i.e., SN values that advance by anything greater than the first predetermined number 200a) indicate that data has been lost or discarded. Note that since PDU 223g was discarded, the HFN 206h on the receiving side 220 will remain synchronized with the HFN 206h on the transmitting side").

Re claim 46, Jung and Jiang references discloses the method according to claim 41, and Jiang reference also teaches if, for all of the disregarded sequence numbers within the decision window, the candidate hyper frame number updating results in a hyper frame number increase, the hyper frame number of the decision interval is set equal to the hyper frame number of the preceding decision interval increased by one

(page 4, Para 0034, line 12-19, "an ending sequence number value 104e for the previous TTI 121 held a value of 123. This value is incremented by one to obtain a value of 124 for the starting sequence number value 104s for the current TTI 122. The starting sequence number value 104s should thus be equal to the sequence number value of the first transmitted PDU 113a").

Re claim 47, Jung and Jiang reference discloses the method according to claim 36, and Jiang reference also teaches the basic method increases a hyper frame number if, when comparing two received sequence numbers, the most recent of the two sequence numbers is less than the other sequence number (page 4, Para 0035, line 12-19, "Both the PDU 123d and the PDU 123f have sequence number values that land within the acceptable range, as defined by the starting sequence number value 104s and ending sequence number value 104e, and so are accepted. As the sequence number value of the PDU 123f is less than the sequence number value for the PDU 123d, rollover of the sequence numbers is inferred, and the HFN 106h on the receiving side is incremented accordingly").

Re claim 48, Jung and Jiang references discloses the method according to claim 47, and Jiang reference also teaches the comparison is made modulo an integer, the integer being equal to the cycle length of transmitted sequence numbers (fig.9, page 5, Para 0037, line 11-21, FIG. 9 is a block diagram of an example PDU 130 according to the present invention. The PDU 130 uses a special LI 132a to indicate that PDUs immediately prior to the PDU 130 were discarded prior to transmission. The first octet of the PDU 130 includes a 7-bit sequence number (SN) field 131 and a single extension bit

133a. The extension bit 133a indicates the presence of a following LI, when set. In the preferred embodiment, the special LI 132a is the first LI in the PDU 130, and is a value that exceeds the maximum possible length of the PDU 130. Other positions of the special LI 132a are, of course, possible").

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. Vayanos et al pertains to the method and apparatus for allocating data streams given transmission time interval constraints.

b. Longoni et al pertains to the frame synchronization mechanism.

Contact

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nurul M. Matin whose telephone number is 571-270-1188. The examiner can normally be reached on mon-fri (7:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vu Le can be reached on 571-272-7332. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Nurul Matin

A handwritten signature in black ink, appearing to read 'Lin Ye', with a long horizontal flourish extending to the right.

LIN YE
PRIMARY EXAMINER